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AIR WAR COLLEGE

RESEARCH REPORT

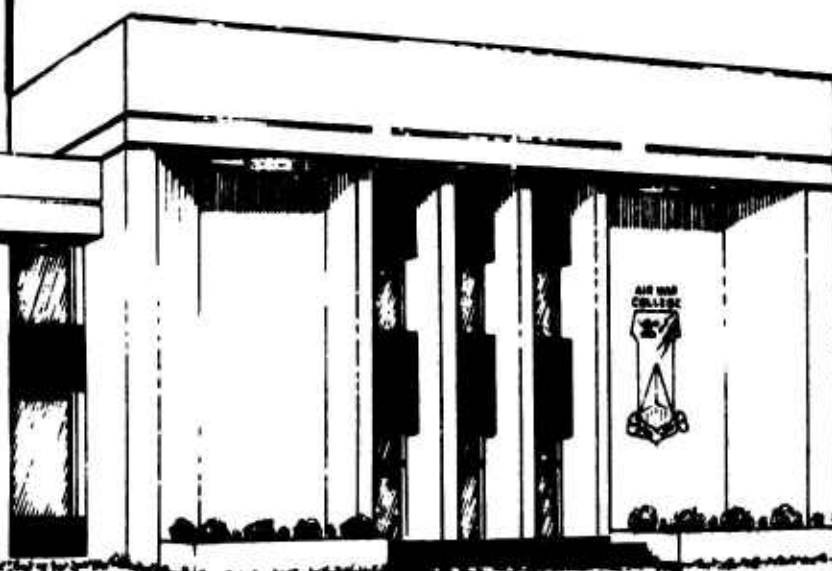
No. AU-AWC-86-097

TOOLS AND TECHNIQUES TO SUPPORT ACCELERATED
AIRCRAFT DELIVERY FOR FOREIGN MILITARY SALES

By COLONEL JOE C. HENDERSON

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AIRCRAFT DELIVERY FOR FOREIGN MILITARY SALES

by

Joe C. Henderson
Colonel, USAF

A RESEARCH REPORT SUBMITTED TO THE FACULTY
IN
FULFILLMENT OF THE RESEARCH
REQUIREMENT

Research Advisor: Lieutenant Colonel R.J. Arceneaux

MAXWELL AIR FORCE BASE, ALABAMA

March 1986

DISCLAIMER/ABSTAINER

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AIR WAR COLLEGE RESEARCH REPORT ABSTRACT

TITLE: Tools and Techniques to Support Accelerated Aircraft Delivery
for Foreign Military Sales

AUTHOR: Joe C. Henderson, Colonel, USAF

—▶ Logistics support can and is usually the limiting factor in an aircraft achieving operational readiness. In the case of foreign military sales, aircraft can be delivered well in advance of the associated logistics support. A description of Air Force logistics support tools and techniques are detailed in order for present managers to consider as an aid potential support methods to overcome problems of compressed delivery are outlined.

BIOGRAPHICAL SKETCH

Colonel Joe C. Henderson, M.S. Systems Management, University of Southern California, has been actively involved in the United States security assistance programs and foreign military sales since 1968. He has performed security assistance duty across a wide spectrum of involvement ranging from Headquarters US Air Force, Headquarters Pacific Air Forces, Republic of Singapore Ministry of Defense, and Directorate of International Logistics at San Antonio Air Logistics Center. His duties have taken him to Africa, Europe, the Middle East, the Pacific, Central and South America, Mexico and the Caribbean. His professional military education includes Air War College, Industrial College of the Armed Forces, Air Command and Staff College, US Marine Corps Command and Staff, all by correspondence, and Squadron Officers School, residence and correspondence. Colonel Henderson is a member of the Air War College, Class of 1986. His follow on assignment upon graduation from Air War College will be to Headquarters Air Force Logistics Command, Wright Patterson Air Force Base, Ohio.

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CHAPTER I

INTRODUCTION

United States military forces, and perhaps more importantly, US forces in conjunction with forces of other nations, must be capable of meeting Soviet, Eastern Bloc, or surrogate exploitation of regional conflicts and instabilities throughout the world. If we must fight, a coalition force composed of USAF and those of our allies would be our most likely form of warfare. Secretary Weinberger, our present Secretary of Defense, has stated, "Our experience in two world wars and many lesser conflicts reinforces our belief that a system of defensive alliances and cooperation is the best way to deter potential opponents and the best way to share in the task of defending freedom."¹ This is called coalition strategy. A coalition strategy serves our interests in several ways. First, by enabling our friends and allies to obtain military equipment and training to defend their independence and territorial integrity, their dependence on US troops is lessened. Second, our overall global defense posture is enhanced. Coalition strategy is partially and largely implemented through the US security assistance program. In his State of the Union address on 6 February 1986, President Reagan said this:

Without resources, diplomacy cannot succeed; our security assistance programs help friendly governments defend themselves, and give them confidence to work for peace. The Congress should understand that dollar for dollar security assistance contributes as much to global security as our own defense budget.

Security Assistance (SA) either through foreign military sales (FMS) or the Military Assistance Program (MAP) is but one of many methods employed by the US Government to enhance our capability to respond directly to a crisis. SA can be especially helpful in assisting our allies in a

low intensity conflict; the promotion of regional security; helping to obtain overseas base rights, overseas facilities and transit rights; ensuring access to critical raw materials; or providing a means to expand US influence. Most areas of the world are of critical importance to the United States to one degree or another. Appendix A depicts a regional distribution of funded SA programs. A review of this appendix reveals a total of 53 different countries. Especially troublesome is the fact that the majority are involved in some form of low intensity warfare, or direct communist inspired military threat. Fiscal year 1986 budget for security assistance in these areas totals just over \$6.5 billion.

Security assistance, as noted above, is big business for both the United States Government and US corporations. Intrinsic value, however, exceeds actual dollar cost in that our national security value of the overall program exceeds the dollar face value. Without the direct and indirect benefits to the US our projected defense budget demands would be much greater than they are now. For example, FMS allows research and development costs to be spread over more units resulting in lower costs to the US Armed Forces. Larger purchases also result in lower unit costs. This is evidenced by the fact that the F-16 aircraft would cost the USAF many times over its present cost if it had not been sold on the overseas market. USAF unit costs decrease because of international sales.

CHAPTER II

APPLICATION

There has been a recent reordering of emphasis within the Department of Defense on the problem of low intensity conflict (LIC). Future conflicts have been characterized as combat operations or US involvement at the lower end of the warfare spectrum. There has been very little written on the subject of security assistance as an element of low intensity warfare. Most authors, analyses, studies, etc. center on the acquisition of more US equipment for US forces or the enhancement of US special operations forces rather than how we should assist our foreign friends.

Low intensity warfare is a present reality in that Soviet operations are presently being conducted in Afghanistan, Vietnam, and Angola. Cuban and Nicaraguan sponsored insurgencies threaten all of Central America. Libya threatens North Africa and the ongoing Iran-Iraq War could spill over such to threaten US friends and allies throughout Southwest Asia. Security assistance is but one of many ways that we can strengthen the US coalition. Sadly, from a LIC standpoint, US military planners either underate our security assistance capability to respond or ignore it.

Our immediate security assistance challenge is to secure adequate funding to meet regional program requirements in a fiscally constrained environment. Secretary Weinberger has noted in the Annual Report to the Congress Fiscal Year 1987 (February 5, 1986) that "Because of uncertainties in this year's budget process, dollar figures for security assistance are unavailable."² The magnitude of the FY87 SA budget is presently

being discussed by Congress and the State Department. The "discussion" is not without rancor. For example, the reader is pointed to the present difficulty that the current administration is having in obtaining SA funding to support the Contras in Nicaragua. The disagreement includes perceived moral problems as well as budget impacts.

CHAPTER III

PROBLEMS OF ACCELERATED DELIVERIES

United States foreign policy frequently dictates an extremely compressed delivery schedule for military defense articles sold or transferred under the aegis of the US security assistance program. Accelerated programs come about as a result of the requirement to meet real, perceived, or potential low intensity conflicts, the achievement of security assistance objectives, or to fulfill US regional strategic objectives. In order to meet these government to government weapon system transfer commitments there are literally thousands of requirements that must come together at exactly the right time and place to keep a multi-million dollar aircraft from becoming a static display. The purpose of this paper is to highlight demonstrated and proven techniques to support accelerated aircraft deliveries. All of these techniques may not be necessary on all programs and application may be dollar constrained. In any event, they are offered for consideration.

"Purchasers" generally want to begin flight operations immediately upon aircraft delivery. There is a natural concern to begin as soon as possible. The manufacturer, always anxious to prove the airplane, is supportable with low maintenance and supply expenditures, and the USAF, as the foreign military sales agent for the purchaser, are pushing everyone to have all support ready. The customer, obviously, is anxious to fly the missions, particularly if they are in support of combat operations.

A current logistics problem, and if it is a "loggie" problem it is an operational problem and shared by all, being experienced is directly related to the "right time" element of logistics support.

Today's lead time for aircraft delivery can be considerably less than lead times for logistics support. However, the customer, that is the purchaser, demands immediate delivery in spite of logistics shortfall problems. Logistics support in this context means all support equipment, initial spares (generally two years worth or "minimum essential" for flight or combat operations); the "supply pipeline" fill; and training, primarily maintenance. The training supplement is important to the lead time problem because hardware is required in country to "train out" the customer at his own base. In other words, in-country maintenance training may not begin until hardware is delivered.

Logistics support delivery times are lengthening for a number of reasons. USAF F-5 FMS customers are now experiencing such lead times as 36 months for an aircraft start unit, 36 to 60 months for a quick engine change kit, 24 to 40 months for a radar system, and 36 months for a landing gear assembly. In the case of F-16 support, the F-100 engine has a 36 month procurement lead time, ejection seat - 39 months, wheel and brake assemblies - 32 months, and radar (standard) - 33 months. These lead times are illustrative of production and procurement lead times for many of the required equipment items. Of course, administrative lead time must be added to the procurement and production lead times. Administrative lead times as high as one year are sometimes necessary because a statement of work may be needed, preparation of a purchase request with extensive coordination, a qualification survey may be required, "competition advocacy" review may be required, the contract must be advertised and competed, the actual contract awarded, and even perhaps first article acceptance and testing is required.

Recent legislative changes have also changed US contracting

procedures. Procurement lead times will, in all likelihood, become longer because of stringent controls now placed on competitive and sole source acquisitions. Recently enacted public laws have several key features that have affected acquisition of FMS requirements. Specifically, sole source justification (SSJ) for contract awards are severely limited. The FMS customer must prepare and submit the SSJ, the SSJ request must be identified in the Letter of Offer and Agreement (LOA), i.e., the "government to government contract," or incorporated by LOA amendment. The Defense Security Assistance Agency must approve its use and the SSJ must be included with the request for purchase. These requirements were not necessary prior to 1982 when the stringent new legislation was passed.

An additional limiting factor associated with some FMS cases is that of a low Force Activity Designator (FAD) and related Urgency of Need Designator (UND). FMS programs are typically assigned a FAD IV. FADs are shown by a Roman numeral from I to V. FMS customer countries are assigned specific FADs by the Joint Chiefs of Staff. The FAD then is applicable to all requisitions submitted in support of a particular FMS program. The FAD is tied to all material destined for the country. The UND represents the country's or the receiving activity's need priority. UNDs are alpha characters A, B, or C. The requisitioner (customer) determines the UND. Generally speaking, UND "A" is extremely urgent, UND "B" less urgent, and "C" is routine stock replenishment. Appendix B shows how the FAD UND assignment translates into a given priority. There are cases where specific country programs start with a FAD IV and are changed to FAD III. However, if requisitions have already been submitted, the FAD change is relatively ineffectual. For initial deliveries, it is

the FAD that is most critical and not the UND. The reason for this is because a FAD IV will never equate to more than a priority seven. Within the overall DOD supply system, a priority seven is overwhelmed by an abundance of priority threes. In the case of initial requisitions, the US logistics activity uses a UND A. In other words, for initial requisitions the US Government logistics support activity, e.g., an Air Logistics Center, will requisition all initial spares and equipment using JCS assigned FAD and UND A. For FAD IV countries, a priority seven is the highest available.

A contractor is not prohibited from producing a defense article in anticipation of a sale. In view of this fact, the contractor can build purely on speculation. For example, an aircraft manufacturer such as Northrop Aircraft may have several F-5 aircraft that are already built, yet not sold or committed for sale. These aircraft could be made available for relatively immediate FMS delivery. Undelivered aircraft are available perhaps because the original FMS program or commercial sale that generated manufacture may never have materialized.

In addition to aircraft that are immediately available from a manufacturer there are other airframes that may be made available on an expeditious basis. USAF itself has transferred aircraft via FMS and other security assistance methods on an accelerated basis on numerous occasions. To illustrate, F-16s, F-4s, A-37s and O-2s have been transferred to Egypt, Central and South American air forces on an accelerated delivery basis. These aircraft either came from active USAF squadrons, Air National Guard, Air Force Reserve, or AFLC (Aerospace Maintenance and Regeneration Center AMARC previously known as the Military Aircraft Storage and Disposition Center at Davis-Monthan AFB, Arizona). In any

event, whether from the manufacturer or USAF, there are airframes available for quick delivery. Logistics support is not so quickly delivered. If however, airframes are diverted from active or ANG/reserve forces, force degradation or delay in activating new units can become a stumbling block in obtaining these aircraft.

The Department of Defense is prohibited from ordering or building, i.e., awarding a contract in anticipation of an FMS case. For a contractor, speculative aircraft may be a good risk because the aircraft will most likely be sole sourced; however, logistics support is probably competed (has been or will be) or bought through USAF FMS and building unassigned support (spares and equipment) by the contractor is a bad risk. An exception to this is the Special Defense Acquisition Fund (SDAF).

The SDAF, however, placed emphasis on acquisition of basic Army combat equipment. The Air Force has been particularly interested in purchasing long lead components for aircraft production, as well as procurement of long lead spares and support equipment which can significantly impact sustainable combat capability. These types of items, however, currently present conceptual and management difficulties.

The SDAF allows the Defense Department to draw on DOD inventories for immediate delivery, make anticipatory orders, speed up long lead deliveries, and smooth out production schedules. Procurement decisions for SDAF are made on the basis of recommendations by the military services to the Defense and State Departments. Equipment and systems identified to Congress as FY87 candidates include aircraft long lead time support items, helicopters, munitions (missiles, ordnance, guns, etc.), communications equipment, radars, and infantry equipment.⁴ As previously noted, past experience has shown more Army successes than that of the USAF.

As Department of Defense gains more experience over time, perhaps the SDAF represents a solution to the long lead time problem, particularly if aircraft spares and support equipment can be made integral to SDAF congressional funding. The USAF should exploit the SDAF more fully with an eye to incorporating logistics support items that could more rapidly support an accelerated delivery. Since SDAF inception in 1982, a total of \$719 million has been obligated.

CHAPTER IV

TECHNIQUES TO SUPPORT ACCELERATION

As anyone knows, an aircraft without logistics support is in fact a "static display." There are several techniques that can be applied towards the solution of this apparent dilemma. They include some or all of the following:

- Authority to order, early identification of program parameters and requirements
- Site Survey
- Intensive program management
- International Weapon Item Projection System
- Assignment of appropriate Force Activity Designator at the outset of the program
- Weapon System Logistics Officer
- Contractor cooperation and involvement
- Incorporation of broader based logistics requirements in the SDAF to include USAF, DLA, GSA, and other military service managed items
- Mobile Training Teams, Language Training Team, Combat Logistics Support Squadron
- Transportation Support
- Standard vs non-standard support
- Baseline definition
- SDAF

None of the above are likely to be stand alone panaceas; however, with an accelerated program, a blend of all of the above will certainly

lessen the initial impact and strain of early weapons system delivery. It is hoped that program managers, international logisticians, country managers, etc. faced with an accelerated program can use this research paper as a "cookbook" of proven logistics support techniques that will more easily allow the absorption of modern aircraft into an allied air force inventory.

The first point, authority to order, should be undertaken as soon as obligation authority (OA) and program execution are received. To do this, the program parameters must be defined and agreed to early on at program inception and well before OA is provided. OA is basically the authority to requisition or commit money to a specific program. For example, number of aircraft, flying hour program, configuration, operational concepts, (one main operating base, forward operating location, tactics, etc.) all drive this, and infrastructure concepts are best determined only after a hard in-country look by logisticians. The operational concept is generally a purchaser determination, but in some cases, the operational concept is a function of available dollars.

"Face to face" encounters or site surveys with country counterparts and first hand observation are crucial. The in-country look will allow at least a partial pre-definitized list of minimum essential support requirements to be drafted out as a starting position for logistics negotiations and definitization recommendations. An abbreviated site survey checklist for in-country logistics supportability assessments is at Appendix B. The site survey appendix is not all inclusive and is offered only as a "memory jogger."

Intensive program management, generally applicable to all FMS cases. includes such actions as mutual agreement by all concerned -

USAF, contractor, and customer, as to what constitutes minimum essential support or key program parameters. Minimum essential support is ideally a derivative of the operational concept, but dollars available also input on the determination. Intensive program management can translate to the individual program manager's attention on the mission's absolutely "critical" items, that is, items with leadtimes exceeding aircraft delivery items. Support alternatives or "work around" procedures must be developed and coordinated for out of production, unavailable items, or long lead items. Manual tracking of purchase requests and requisitions are also important. Direct program manager interface with item managers and procurement representatives (US buyer) are certain to help. "Squeaky wheels" do in fact get attention and the overall logistics juggernaut must remain responsive to the need. Even though FMS is supposed to get equal treatment under the Uniform Materiel Movement and Issue Priority system, that is not always true on an individual "in basket" basis. Many inventory managers continue to support USAF first at the expense of FMS even if FMS has a higher priority. Definition of criticality and individual attention combine to allow elevated command or organizational emphasis when necessary. Sole source procurement may be a partial solution although this is getting administratively more difficult in today's atmosphere of legislative mandates, competition advocacy, and contractor pricing horror stories. Sole source for FMS remains a buyer's option, although more difficult now.

A management tool unique to the San Antonio Air Logistics Center (SA-ALC) and used many times by the author, is the International Weapon Item Projection System (IWIPS). IWIPS was developed at SA-ALC to project F-5 aircraft spares and related support equipment requirements for a

defined initial support period of usually two years. The data base includes over 85,000 items of spares (logical airframe and avionics spares) and a full range of support equipment items. Slowly evolving at SA-ALC is a capability to definitize support equipment spares also. This is a key feature for FMS customers because they generally lack the capability to do this for themselves. The spares and support equipment requirements listing is based on whatever unique country program parameters (repair capability, number of aircraft, flying hours, operating locations, etc.) are input as "triggers" to output recommended item quantities. Summary quantities and pricing data can also be used to develop planning and requirements and price and availability data, while the itemized recommendation of spares and support equipment is used as the FMS negotiation listing at the definitization conference held with the customer country. This listing is produced for the definitization conference and is reviewed by the various customer and USAF technical and managerial representatives. This document is one of the single most effective management tools a program manager has available. The negotiation process itself is normally a line item review of 8,000 to 14,000 individual items, exclusive of depot support, that best tailors the country's logistics and operational desires with their own unique incountry capabilities. Recommended quantities are adjusted, additions or deletions made, with a master record produced that reflects final negotiated quantities. IWIPS then allows for all required items to be submitted directly to the Military Standard Requisitioning and Issue System (MILSTRIP) as requisitions into the AFLC Security Assistance Management Information System (SAMIS). A byproduct of this process is the country data base (CDB) system at SA-ALC. The CDB creates a computer transaction

file that allows requisition visibility and tracking. IWIPs and the CDB provide SA-ALC program managers unique opportunities to apply managerial expertise on specific problem items with the longest expected delivery times that go beyond aircraft delivery dates. (Note: The IWIPS is presently being expanded to include an F-16 definitization capability.)

Force Activity Designator assignment is also very important early on. A FAD IV, Urgency of Need Designator "A", i.e., urgent equates to a UMMIPS Priority 07. If a FADIII, UND "A" was used, a Priority 03 would apply. (See Appendix B on how these priorities are obtained.) This difference, i.e., priority three versus seven, does much to instill a more urgent support attitude on the part of an inventory manager at an Air Logistics Center or other DOD logistics support activity. In the author's opinion, support attitude decreases in proportion to the distance away from the case-country-program manager charged with execution of a case. In many cases, a Priority 07 can receive quicker attention from an inventory manager if the "face to face contact" technique is used on a frequent basis. Otherwise a Priority 07 goes at the bottom of an in-basket if all other requisitions are Priority 03. If a program is to enjoy expedited supply delivery times, USAF Air Staff should work closely with the Joint Chiefs of Staff to ensure the highest possible FAD is assigned.

Another personnel intensive management technique for support of accelerated efforts is the use of a Weapon System Logistics Officer (WSLO). A WSLO is an AFLC representative assigned to a program, be it a task force, project, or FMS country program. In our case, it would be the latter, i.e., an FMS program. The WSLO is responsible to the system manager or FMS country program manager and renders AFLC support

during initial activations or incorporation of a weapon system into a country's aircraft fleet. The WSLO is generally located at the purchaser's in-country operational base and specifically assists in the resolution of logistics support problems and in assisting in the provision of on-the-job training. On a case by case basis, a WSLO should be considered as essential part of a delivery program and a condition of the sale, particularly for accelerated delivery programs, lesser developed air forces, or severely underfunded programs. This latter problem -- underfunding makes a WSLO important because of the large amount of work-around procedures needed, primarily when a particular piece of critical support equipment will not be delivered in time.

No weapons system is supportable without the keen attention and close cooperation of the contractor. Both the prime and other major vendors can be particularly helpful. Contractor involvement can include such items as development of logistics support kits (hydraulic repair, launch and recovery only support, and item repair kits, etc.); interim contractor support in the form of maintenance field teams tailored to country requirements; contract engineering technical services technicians or CETS; timely support of not-to-exceed and unpriced orders, and lastly day to day involvement of corporate program managers. All of these techniques can possibly reduce contract administrative lead times, allow earlier contract award, and otherwise assist in meeting all required delivery dates in an expeditious manner.

Contract Field Teams (CFT) also represent an exceptional medium to be able for a country to rapidly assimilate a weapon system into their inventory. CFTs are available from either the prime contractor, as in Northrop Aircraft Corporation's case for the F-5 aircraft family

(F-5A/B/E/F and RF-5A/E) or through any number of other contractors.

Northrop has been used to support the F-5 in Sudan, Morocco, and Tunisia.

Lear Siegler, Incorporated is about to assume F-5 support in Saudi Arabia.

Other CMTs have been used to support FMS procured systems worldwide. Examples include General Dynamics for F-16 support, Northrop Worldwide Aircraft Services Incorporated for Vietnamese Air Force F-5 support, and Lear Siegler, Incorporated to support Honduran Super Mystere maintenance and modification.

CMTs can vary in size and be tailored to any level necessary and can easily provide day to day aircraft maintenance support from flight line level through depot maintenance level repairs. These teams should ideally represent interim support measures if used for day to day support in country so that the difficulty of absorbing an advanced weapon system into the fleet is lessened. CMTs should be phased out as purchaser organic capability is obtained and "manloaded" such that as the country develops, the requisite CFT support capability is phased out. Their use in developing air forces permits early flight operations that otherwise would have been impossible at worst to difficult at best. CMTs have a history of successes and on the whole, the purchaser only reluctantly terminates them once the CMT begins work. The reluctant termination is because of customer satisfaction and the difficulty in a country meeting its training objectives and not vice versa.

The reader should not confuse CMTs with Contract Engineering Technical Service (CETS) representatives. CETS are precisely defined as "services performed by a contractor which provide the necessary liaison or advice and training...in the installation, operation maintenance, and logistics support of the weapon system or equipment

purchased."⁵ CETS personnel are not normally "hands on" maintenance people, but they do serve as invaluable aids in directly supporting a weapon system. In general terms, CETS will be included in the FMS of an aircraft and would normally provide technical assistance in the areas of airframe, engine, avionics, logistics, and automatic test equipment. CETS are expensive for the purchaser with individual total yearly costs running as much as \$140,000 each. These CETS representatives can be counted on to provide training, engineering, and technical consultation services, as well as serve as a valuable direct link to the manufacturer. Governing authority for CETS is AFR 66-18.

On the other hand, CMTs are priced substantially less than CETS. The price for a CMT technician can go from \$17 to \$62 per manhour. The wide variation in cost varies significantly because of the many cost variations of CONUS or overseas employment. The lower price of \$17 per manhour is based on an already negotiated USAF manhour price based on contracts already in existence. This latter case, i.e., existing contract, offers much to a purchasing country in terms of advantages. For example, the country may tag on to USAF requirements and be able to capitalize on the lower manhour rates. High overhead cost, general administrative, profit factors, and administrative start up times are lessened substantially when an already negotiated contract such as a USAF CMT is used. Additionally, the long lead times associated with sole source or competitive procurement are avoided.

The USAF procured contract field team approach is, at this time, virtually unused by FMS customers even though it has been available to USAF and FMS purchasers for quite some time. It is for this reason that the author would like to expand on CMT applicability to FMS purchasers.

The reader should keep in mind surrogate technical assistance when low intensity conflict issues such as early combat operations arise and accelerated aircraft delivery is directed. The need is particularly true when they relate to the introduction of a sophisticated weapon system into an undeveloped or lesser developed country.

The use of contract maintenance teams in a combat environment is already proven. For example, during the years 1973 to 1975, after US force withdrawal, combat logistics support in Vietnam was virtually a contracted operation with many prominent US contractors supporting the Republic of Vietnam war effort. This was in spite of many of the contractors coming under direct hostile attack.

Contract Maintenance Teams are more precisely defined as a skilled contractor mobile work force which performs field and depot maintenance and/or modifications of weapon systems and support equipment at work-sites all over the world. CMTs are particularly desirable when abnormal workloads are present. Work to be performed could be scheduled, unscheduled, in response to an urgent situation, or even a peak demand type problem that would build rapidly and phase down quickly. CMTs are cost effective because they use the US government's or purchasing country's facility, tools, and equipment. The contract, since it is already negotiated, is a time and materials contract and the purchaser is charged only for actual manhours expended. If the work was done in the US, there could be additive equipment costs. Spares, consumables, etc. could either be provided by the country or through the contract itself.

Aircraft maintenance services available through the employment of CMTs include airframe, engines, aerospace ground equipment, electronics equipment, painting, stripping, corrosion control, ground vehicles,

nondestructive testing, modifications, or time compliance technical orders.

In summarizing contracted labor services, the CMT is a proven concept at economical labor rates. CMTs are available through existing Basic Ordering Agreement type contracts with the USAF. There is no procurement lag time and CMTs are proven performers in foreign countries and in hostile combat environments. During the Vietnam hostilities, particularly after withdrawal of US forces, there were as many as 7,000 civilians serving in South Vietnam between 29 March 1973 (the date that all US military, less the 50 US military allowed under the Geneva accords were withdrawn) and the absolute and final collapse of the South Vietnamese Government on 30 April 1975.⁶ They also employ USAF approved organization procedures, quality assurance methods, and approved security/classified measures where necessary. The depth and range of one such CMT contractor's services are shown at Appendix C. A Lear Siegler, Incorporated capability is shown because of the author's familiarity with that company.

Other forms of surrogate personal logistics support include mobile training or technical assistance field teams consisting of DOD military or civilians, language training teams for English training (evaluation, supervision, and training for instructors) and AFLC Combat Logistics Support Squadrons of CLSS. (See Appendix E). The CLSSs are available to support FMS purchasers and generally perform shorter term type requirements. Other forms of logistics training assistance available include CONUS based technical and formal, on-the-job and qualification training in either CONUS or foreign country, observer and familiarization, and orientation training tours.

And lastly, other support tools available for accelerated support include use of the Defense Transportation System (DTS), for example MAC or MSC. The normal method of shipping FMS articles is by a purchaser designated freight forwarder. The purchaser pays all shipping costs. Requests to use DTS, other than AFR 400-3 "normal" DTS movements such as classified, explosives, firearms, chemicals, or hazardous items, are considered exceptions. The Defense Security Assistance Agency must approve all requests for an exception to standard transportation use. Generally speaking, MAP articles and FMS credit items can be moved via DTS. The program manager should carefully consider the DTS option and explore AFR 400-3 and DSAA waivers.

Another important logistics consideration on how quickly a program can be delivered is aircraft configuration. On the whole, the more a purchaser deviates from a standard USAF or Department of Defense (DOD) weapon system configuration, the harder it is to support. Standard items are acquired and managed for general DOD use and for which replacement items or repair services are maintained within DOD. Non-standard items, on the other hand, are those items not in the DOD inventory or not procured for regular DOD use. The selection and use of non-standard items can considerably increase logistics support times. Their use should be discouraged or at least standard items should be optimized.

CHAPTER V

CONCLUSION

Implementation strategy of a compressed end item delivery should systematically address all the above issues. Accelerated deliveries are a continuing problem that will, in all likelihood, only grow worse. It is of mutual interest to the United States and the customer that support will be timely and adequate and accomplished with realistic methods at reasonable cost. No program is over funded. Requirements will almost always exceed available dollars. Techniques identified in this paper can significantly lessen logistics impacts associated with compressed delivery schedules and better serve both the US government, USAF, and purchasing nation.

The potential of USAF combat involvement in a low intensity conflict can be considerably lessened if our allies are militarily strong. A militarily strong service can at least be partially attributed to possessing the best combat equipment available that is logistically supportable. It is in the US Government's best interest to keep security assistance alive and well. USAF war planners should continue to exercise all options available that lessen the potential for direct USAF involvement. The use of accelerated support techniques are but one of many ways.

APPENDIX A

MAJOR FUNDED REGIONAL SECURITY ASSISTANCE PROGRAMS⁷

Western Europe - NATO area

North Atlantic Treaty Organization including Turkey and Greece*

Spain

Portugal

Southwest Asia, Middle East, and North Africa

Morocco

Yemen

Jordan

Tunisia

Oman

Lebanon

Egypt

Israel

Pakistan

East Asia and Pacific

Thailand

Indonesia

South Korea

Malaysia

Brunei

Singapore

Philippines

Western Hemisphere

Bolivia

Colombia

Honduras

Peru

Panama

El Salvador

Ecuador

Costa Rica

Dominican Republic

Sub Saharan Africa

Senegal

Chad

Kenya

Guinea

Sudan

Somalia

Liberia

Zaire

Niger

Botswana

* NATO membership is composed of Belgium, Canada, Denmark, France, Federal Republic of Germany, Greece, Iceland, Italy, Luxembourg, Netherlands,

Norway, Portugal, Spain, Turkey, United Kingdom, and the United States.
(Reference NATO Handbook, 1983).

APPENDIX B

UNIFORM MATERIEL MOVEMENT AND ISSUE PRIORITY SYSTEM (UMMIPS)

	<u>FAD</u>	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>
UND						
	A	01	02	03	07	08
	B	04	05	06	09	10
	C	11	12	13	14	15

For example, a JCS assigned FADIII with extremely urgent requirement (Urgency of Need Designator/UND"A"), i.e., a grounded aircraft or work stoppage, would be a UMMIPS Priority 03.

APPENDIX C
LOGISTICS SITE SURVEY
(COUNTRY ASSESSMENT)

LOGISTICS ELEMENT

- Existing Support System(s)
- Operational Scenerio
- Facilities
- Manning Levels
- Transportation
- Technical Services
- Maintenance
- Supply
- Training
- Initial Support Provisioning
- Follow-on Support
- Data Requirements

EXISTING SUPPORT STRUCTURE/SYSTEMS

- Technology Baseline
 - Existing/Potential Capability
- Customer-or-Third Country Developed?
- Materials/Spares/Services Arrangements
 - Can You Operate in Their Environment?
 - How Flexible is the Customer?
 - Policy
 - Repair/Replace/Return
 - Direct Support Arrangements

--- Funding

--- Advance Notification-How Long?

- Self Sufficiency Goals

OPERATIONAL SCENERIO(S)

- Current Baseline

- Aircrew Training or Combinations

- Flying Hour Program

- Operational Bases

- Aircrew to Aircraft Mixture

CUSTOMER FACILITIES

- Aerodrome

-- Runways, Taxiways, NAV Aids, Lighting, EOD

-- Tower, GCA, Rapcon, Commercial Considerations

-- Test Flight and Weapons Range

- Maintenance

-- Engine, Avionics, Utilities, Hangars, Power, AGE, PMEL

--- Size, Environmental Controls, Back-up Power, Air Water

--- "Type", i.e., I or II PMEL Facility

---- Field Calibration Units

---- Test Measurement and Diagnostic Equipment

---- Environmental Controls Stabilized Power, etc.

- Supply/Warehousing

-- Storage Area, Shelf Life, Automation

- Munitions

-- Storage, Maintenance, Assembly, Testing, EOD

- Petroleum, Oils Lubricants (POL) and Oxygen or LOX

-- Existing Storage, Source of Supply, Added Needs (FSI)

- Specifications - Alternates and Sources
- Training
- Publications
- Administrative
 - Office and Storage
 - Internal and Commercial Communications
 - Phones, Telex, RJE/CRT
 - Typing Support, Word Processing
 - Checking, Banking
- Test Pads/Areas
 - Test Cell(Engine) and Run-up Areas
 - Compass Swing, Gun Firing

MAINTENANCE

- Existing Policy and Philosophy
 - Is Policy Flexible?
 - Does It Support Current Requirements?
 - Is Commercial Support:
 - Available
 - Permitted
- Is Maintenance Standardized?
 - What Outside Influences Are There?
 - How Many Echelons - What Are They?
- What Technology Base Exists?
 - How Deep?
 - Is It Lateral?

SUPPLY (LOGISTICS)

- Current Procedures and Policy

- Rigid, or Flexible
- One, or Many Systems
- Funding
 - Forecasted and Available
 - Contingency Monies
- Stock Leveling Ability
- Purchase Authority
- Controls
 - Reparables/Investment Items
- Internal Administrative Pipeline Times
 - In-Country Repair/Purchase Outlets
 - External Repair/Purchase Outlets
- Forecast Capability
- Automation

PUBLICATIONS/DATA REQUIREMENTS AND TRAINING

- Part of Support Cost

INITIAL SUPPORT PROVISIONING

- Funding
 - Period of Support
 - Methodology
 - Contractor Forecasts
 - Confidence Levels
 - Pipeline Times - Repairs/Replacement
 - Influences
 - All Other Elements
- Provisioning Activity
 - Define Requirements - Definitization

- Accountability
 - Substitutions
- Contractor Support Methods
 - Anticipated Spares and Equipment with Production

MANNING LEVELS

- Existing Cadre Force Structure
- Added Specialties and Personnel
 - Requirements
 - Technology Base
 - In Country Training Program and Capability

TRANSPORTATION

- Internal Systems
- Freight Forwarder
 - Policies

TECHNICAL SERVICES

- Engineering
- Maintenance/Logistics
- Funding Vehicles

FOLLOW-ON SUPPORT PROVISIONING

- Contractor Forecasts
 - Annual Funding Projections
- Vendor Direct
 - Are You Flexible?
- Lifecycle Purchases
 - Timing
 - Costs

INTEGRATED LOGISTICS SUPPORT PLAN

- Is a Formal Plan Necessary?
 - Initial Agreements
 - Personnel Changes
 - Funding Vehicle
- Basic Structure - Elements
 - Three Sections
 - 1. Technical Descriptions - Aircraft and Systems
 - Program and Logistics Management
 - 2. Operational and Support Concepts
 - Operations
 - Facilities
 - Maintenance
 - Supply Support
 - Training
 - Publications
 - Program Activation and Operation Checklists
 - 3. Intra Government Support Function Procedure Agreements
 - A Description of Your Supply and Contacts System
 - How You Each Intend to Interface and at What Levels?
 - Supply Requisitioning Procedures
 - Funding and Material Demand Procedures/Agreements
 - Material Return Procedures
 - Discrepancy Reporting System
 - Transportation Agreements
 - Technical Assistance Agreements
 - Customer to Vendor Direct Support

----- Appendix

----- Explanations/Translations

APPENDIX D

LSI MANAGEMENT SERVICES DIVISION REPRODUCTION

LSI Briefing Extract

follows

pp. 34-46

CONTRACT FIELD TEAMS (CFT)⁶

- WHAT
- WHEN
- WHERE
- WHY
- HOW

WHAT CONTRACT FIELD TEAMS

SKILLED CONTRACTOR MOBILE WORK FORCE WHICH PERFORMS FIELD AND DEPOT LEVEL MAINTENANCE - AND/OR MODIFICATIONS - OF WEAPON SYSTEMS, AND SUPPORT EQUIPMENT AT DESIGNATED OPERATIONAL WORKSITES THROUGHOUT THE FREE WORLD



WHEN CFT DESIRABLE

CFT ABSORBS ABNORMAL WORKLOADS

- SCHEDULED
- UNSCHEDULED
- URGENT RESPONSE SITUATIONS

COST EFFECTIVE

- UTILIZATION OF USER ORGANIZATION FACILITY
- NO MOVEMENT OF AIRCRAFT TO GOVERNMENT/
CONTRACTOR FACILITY
- CHARGED ONLY FOR THE MANHOURS USED

WHERE CFT UTILIZED

- OPERATIONAL SITES
- "QUEEN BEE" WORKSITES

WHY CET

- PROVEN CONCEPT
- ECONOMICAL SELL RATES
- EXISTING BOA TYPE CONTRACT WITH USAF
- NO PROCUREMENT LAG TIME
- USAF APPROVED ORGANIZATIONAL PROCEDURES
- USAF APPROVED QUALITY ASSURANCE PROGRAM
- USAF APPROVED SECURITY PROGRAM
- PROVEN FOREIGN COUNTRY PERFORMANCE
- PROVEN HOSTILE ENVIRONMENT PERFORMANCE

HOW

CONTRACTURAL VEHICLE

BASIC CONTRACT (SIMILAR TO BOA) WITH ALL AGREEMENTS, TERMS/CONDITIONS, & NEGOTIATED MANHOUR RATES IN PLACE

DELIVERY ORDERS CAN BE PLACED AGAINST THIS BASIC CONTRACT BY PCO'S AT THE ALC'S & ASD.

CONTRACT ADMINISTRATION IS THE RESPONSIBILITY OF AFLC/AFCMC/TMC, WPAFB, OHIO

HOW TO

REQUIRING AGENCY PROVIDES PURCHASE REQUEST (WORK SPECS, SUPPLY INFO, SAFETY REQUIREMENTS DATA PACKAGE) AND FUNDS TO APPLICABLE ALC OR ASD PROCUREMENT OFFICE



**CONTRACT FIELD TEAMS (CFT)
TYPES OF MODIFICATION AND MAINTENANCE**

- AIRFRAMES
- ENGINES
- AEROSPACE GROUND EQUIPMENT
- ELECTRONICS EQUIPMENT
- PAINTING
- CORROSION CONTROL
- GROUND VEHICLES AND WATER VESSELS (TRUCKS, BOATS,
AND HOWITZERS)
- NON-DESTRUCTIVE TESTING

CONTRACT FIELD TEAMS
CURRENT PROJECTS

USAFAIRCRAFTENGINES

F-4	F-100-100
A-37	F-100-200
T-37	J-79
T-38	J-85
B-52G	TF-34
B-52H	T-56 Q.E.C.
C-130	
F-106	
O-2	
C-141	

NAVYMATERIAL MANAGEMENTARMYHELICOPTERSMISCELLANEOUS

CH-47	GAMMA GOATS
UH-1	HOWITZERS
UH-60	FORKLIFTS
AH-1	
OH-6	
OH-58	
CH-54	



OCONUS EXPERIENCE

- PRESENTLY HAVE 9 PROJECTS IN FOREIGN COUNTRIES
- WE HAVE AVERAGED 175 PEOPLE IN OVERSEAS LOCATIONS DURING OUR ENTIRE 23 YEAR HISTORY

THIS DOES NOT INCLUDE OUR EXTENSIVE INVOLVEMENT IN RVN FROM 1966 -1975 WHEN WE AVERAGED 1200 THERE, WITH A PEAK OF 1800. DURING THE 1972 - 1975 TIME FRAME WE WERE REQUIRED TO BE TOTALLY SELF-SUFFICIENT FOR ALL LOGISTICS SUPPORT.

COST PROJECTIONS

LABOR

COMPOSITE MANHOUR COST (OVERSEA'S THEATERS)	\$16.50
AVERAGE MANYEAR COST (48 HOUR WORK WEEK)	\$38,676.00

PER DIEM

PER DIEM, BASED ON JOINT TRAVEL REQ.
VOL II, CHG 223, 1 MAY 84

BUENOS AIRES, ARGENTINA:	\$73.00 DAY - \$26,645 MY
KARACHI, PAKISTAN	\$72.00 DAY - \$26,280 MY
TAIPEI, TAIWAN	\$92.00 DAY - \$30,894 MY

TOTAL - LABOR & PER DIEM

BUENOS AIRES	\$65,311.00
KARACHI	\$64,956.00
TAIPEI	\$69,570.00



WEAPONS SYSTEM EXPERIENCE

As evidence of the vastness of LSI/MSD experience, the following listing identifies weapons and support systems and manhours of experience on each through 29 March 1984. In addition, this listing identifies work tasks accomplished by our Contract Field Teams which are beyond the normally accepted "aircraft and support systems" spectrum and amplifies the wide array of LSI/MSD Field Team capability.

AIRCRAFT	MANHOURS	AIRCRAFT	MANHOURS
F-4	6,401,706	C-5A	66,576
F-5	246,088	C-7A	110,686
F-14	7,729	C-47	636,103
F-84	817,315	C-54	96,117
F-86	722,108	C-97	137,818
F-89	456,999	C-118	25,553
F-100	556,015	C-119	481,495
F-101	206,179	C-121	693,624
F-102	279,068	C-123	433,786
F-104	97,258	C-124	53,828
F-105	129,930	C-130	2,735,743
F-106	55,442	C-131	246,706
F-111	7,729	C-133	132,291
A-1	27,478	C-135	19,526
A-3	14,124	C-140	2,281
A-4	16,182	C-141	2,237,860
A-5	14,153	B-26	509,499
A-6	15,153	B-47	424,615
A-7	16,153	B-50	55,828
A-37	155,046	B-52	96,093



AIRCRAFT	MANHOURS	AIRCRAFT	MANHOURS
B-57	428,277	O-1	257,962
B-58	180,138	O-2	29,323
B-66	319,314	OV-1	12,676
T-28	278,072	OV-10	2,781
T-29	714,758	U-1	559,579
T-33	962,379	U-6	576,569
T-37	1,310,079	U-8	562,727
T-38	3,155,379	U-21	660,825
T-38 (wings)	23,131	TF-33	1,632
T-39	13,711	TF-34	12,655
AH-1	850,807	T73-P-700	170
UH-1	2,368,475	F-100 Eng	109,284
OH-6	699,403	J-33	11,842
OH-13	482,824	T-53	*53,150
OH-23	558,570	T-55	*31,680
OH-58	481,269	J-57	418,574
HH-3	48,486	J-65	12,280
HH-19	14,904	J-69	*28,060
HH-21	80,591	J-71	6,473
HH-43	19,406	J-75	60,872
HH-53	75,989	J-79	158,667
UH-60	1,491	J-85	*97,873
CH-34	214,809	R-3350	8,563
CH-37	42,988	S-2	7,424
CH-46	43,361	HU-16	13,055
CH-47	1,708,879	Q2/BQM-34	54,302
CH-54	90,798	APQ-120	76,166

*Manhours included in formal class room training & OJT.

As of 29 March 1984



MISCELLANEOUS	MANHOURS
Communication	63,612
Generators (KW)	157,643
Reclamation	104,235
AGE	69,858
Depot Management	1,931,163
Material Management	176,026
UH-1 Power Train	
Overhaul	20,003
Formal Class Room	
Training & OJT	2,111,995
Spectrometric Oil	
Analysis Labs	447,066
Air Traffic Control	361,897
Truck, Shop Set	
(M-887)	10,905
Laundry & Dryer Units	1,029
MXU 648/A MOD POOS	19,220

TOTAL MANHOURS

MISCELLANEOUS	MANHOURS
Sound Suppressors	7,146
MOD Kit Manufacturing	31,927
Fork Lifts	66,213
M-747 Trailers	2,876
50 Ton Boxcars	12,864
Mobile Assault	
Bridges	5,380
LCM-8 Landing Craft	1,699
Transporter, Tactical	
Floating Bridge	672
Precleaner and Particu-	
late Filter Assembly	1,156
Howitzer, Heavy, Self-	
propelled 8-inch	92,417
M561/M792 Series	
1 1/4T, 6x6 Vehicles	17,814

44,146,186

APPENDIX E

COMBAT LOGISTICS SUPPORT SQUADRON ASSIGNMENTS

BY AIR LOGISTICS CENTER

2951st	Combat Logistics Support Squadron Sacramento Air Logistics Center McClellan AFB, CA 95652
2952nd	Combat Logistics Support Squadron Ogden Air Logistics Center Hill AFB, UT 84506
2953rd	Combat Logistics Support Squadron Oklahoma City Air Logistics Center Tinker AFB, OK 73145
2954th	Combat Logistics Support Squadron San Antonio Air Logistics Center Kelly AFB, TX 78241
2955th	Combat Logistics Support Squadron Warner Robins Air Logistics Center Robins AFB, GA 31098

Note: The CLSSs are "assigned" one of two ways, i.e., geographically or by aircraft. For example, a C-130 aircraft is managed at Warner Robins ALC, the F-100 PW100 engine at San Antonio ALC. Geographically, Sacramento ALC supports the Pacific region and San Antonio Central and South America, etc.

NOTES

1. Secretary of Defense Caspar W. Weinberger, Annual Report to the Congress Fiscal Year 1987, February 5, 1986, p. 263.
2. Weinberger;
3. Lieutenant Colonel James E. Muehleisen, "The Special Defense Acquisition Fund for Security Assistance," Headquarters USAF (AF/PRIP), Washington D.C., December 1973, p. 6.
4. Aviation and Space Technology, "Aerospace Forecast and Inventory," March 10, 1986, p. 95.
5. Foreign Military Sales, Air Force Regulation 400-3 (Washington D.C.: Department of the Air Force, 28 May 1981), p. A1-1.
6. Michael Maclear, The Ten Thousand Day War, New York: St. Martin's Press, 1981, p. 379.
7. Weinberger, pp. 263-285.
8. Briefing, Lear Seigler Incorporated to Chief Country Managers Branch, Kelly Air Force Base, Texas, subject: FMS Modification and Maintenance by Contract Field Teams, circa September 1983.

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- Trapp, Robert E., ed. Foreign Training Officer's Guide. Wright Patterson Air Force Base, Ohio; Defense Institute of Security Assistance Management, August 1984.
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RESEARCH PROPOSAL

I. Title. Tools and Techniques to Support Accelerated Aircraft Delivery for Foreign Military Sales (FMS)

II. Objective. To examine the problems inherent in logistically supporting aircraft that are delivered under accelerated conditions.

III. Problem Statement. US security assistance objectives dictate that military aircraft be transferred to allied air forces throughout the world. This transfer can be accomplished through outright grants or foreign military sales. There is a high degree of probability, due to combat requirements of political reasons, that the aircraft will be delivered well in advance of logistics support. This acceleration of aircraft delivery times requires extraordinary logistics support measures. By exploring tools and techniques available to the program manager or logistician, I hope to highlight potential solutions to difficult problems.

IV. Methodology.

A. General Approach. The study will be largely based on my personal experiences gleaned through several years of working in international logistics. Additional study will be based on library research, discussion with other logisticians and program managers who have faced accelerated delivery problems in FMS. Sources will include primary and secondary works in the field of US security assistance.

B. Research Design. To answer the basic research question of, "What tools and techniques are available to support accelerated FMS deliveries?", my own experiences will be drawn upon as well as others throughout AFLC and the Air Staff.

I also plan to explore what I consider to be an innovative approach through the use of contractor field teams (CFT). My recent experience with CFTs in the modification of French manufactured Israeli modified Honduran owned Super Mystere jets will be particularly drawn upon.

Lastly, I will perform TDY at Wright-Patterson AFB, Ohio (International Logistics Center) and conduct additional research.

V. Implications. This study should highlight logistics possibilities in meeting country to country agreements in the transfer of weapons systems. Planners should be particularly interested in low intensity warfare applications.

VI. Requirements.

A. Personnel Support. I will arrange for typing and other research assistance.

B. Hardware and Software. Not required.

VII. Scheduling.


A. Major library research completed by 15 Jan 86.

B. Rough draft submitted to advisor by 14 Feb 86.

C. Final paper to advisor by 21 Mar 86.

VIII. Funding: TDY funds of approximately \$300 will be required (WPAFB, OH) and \$50 for typing support.

APPROVED


RESEARCH ADVISOR 115 Oct 85
DATE